

1897. ALCOHOL.
DISTILLED SPIRITS

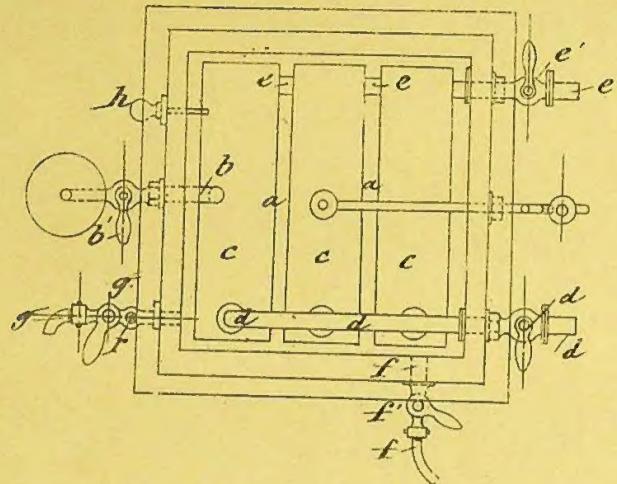
British Patent

Aging
Processes.

No. 1162

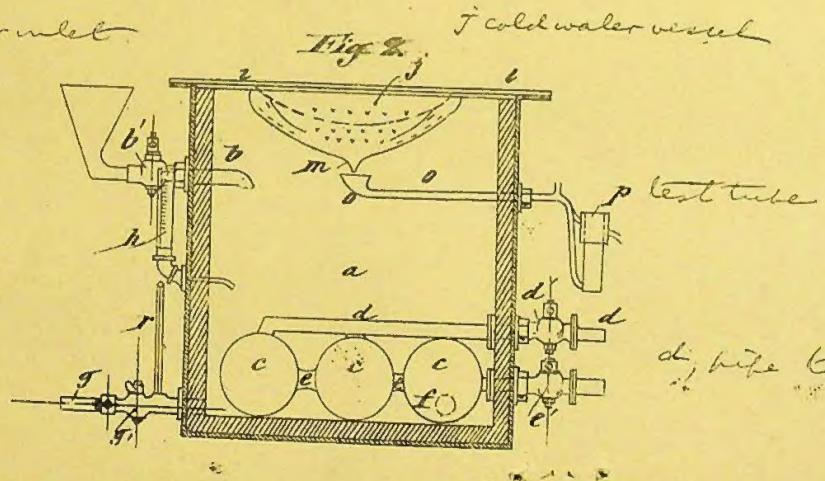
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HAECK'S COMPLETE SPECIFICATION

Fig. 1.



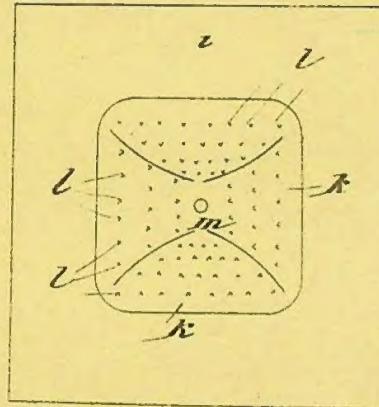
b', liquor inlet.

j, cold water vessel.



d, pipe to and from boiler.

Fig. 3.



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BEVERAGES

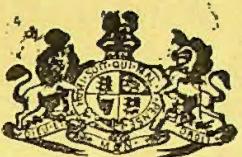
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N° 1162



A.D. 1897

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Date of Application, 15th Jan., 1897—Accepted, 6th Mar., 1897

COMPLETE SPECIFICATION.

A New or Improved Process and Apparatus for Rapidly and Economically Ageing or Maturing Alcoholic Beverages.

I FLORE CATHERINE HAECK of No. 131 Boulevard Militaire Brussels in the Kingdom of Belgium Widow do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement:—

- 5 This invention consists in a process and apparatus by means of which effects are produced artificially and in a comparatively short time in alcoholic beverages such as wines beer liqueurs and the like analogous to those heretofore obtained by allowing such beverages to mature often for many years.

10 To this end the process consists first in submitting the unmatured or raw beverages to a gentle progressive and methodic heating in a suitable apparatus. The effects of this heating are,

15 a. To disaggregate the various vegetable agglomerations in suspension in the liquid.

15 b. To dissolve the aromatic substances agreeable to the taste which proceed from these disaggregated agglomerations and to evaporate condense and remove the noxious substances more volatile than ethylic alcohol (aldehydes and ethers) contained in all raw alcoholic beverages.

20 c. To cause ascending and descending motion in the liquid the effect being to bring to the surface the noxious elements less volatile than ethylic alcohol but of less specific gravity than the liquid (propyllic butylic and amylic alcohols) also to precipitate to the bottom of the receptacle the heavy vegetable substances proper which are set at liberty by the disaggregation and the density or specific gravity of which is greater than that of the said liquid and finally to establish an intimate and homogeneous mixture of all the constituent elements of the beverage.

25 25 When the heating has produced its full effect the said liquid is allowed to rest in the apparatus for a given time after which it is drawn off into casks the supernatant layer of noxious elements and the heavy matters deposited at the bottom of the apparatus being separately removed.

30 The casks containing the liquid are then placed for several weeks in a locality where the temperature is kept as low and as constant as possible.

30 The liquid is subsequently filtered or clarified by known means and then bottled or placed in casks or receptacles which are liquid and airtight and will not act on the said liquid the object being to produce the "bouquet" which is rapidly developed by a moderate and constant temperature.

35 35 To effect the heating which constitutes the first part of the process I employ by preference an apparatus constructed as represented in the accompanying drawing in which

Figure 1 is a plan of the apparatus without the cover.

40 Figure 2 is a front elevation of the same the front wall being removed.

40 Figure 3 is a plan of underside of the cover.

In the said figures *a* is the receiver into which the liquid to be treated is introduced through the pipe *b* furnished with a stopcock *b¹*. At the bottom of this receiver are laid cylinders or tubes of large diameter *c c c* into which water at the desired temperature is introduced through a pipe *d* proceeding from a boiler. This water

Apparatus for Rapidly and Economically Ageing or Maturing Alcoholic Beverages.

circulates in the cylinders *c* and returns to the boiler by the pipe *e*. The pipes *d* and *e* are respectively provided with stopcocks *d*¹ and *e*¹. *f* is a pipe provided with a stopcock *f*¹ for withdrawing the liquid from the apparatus after treatment.

The mouth of this pipe *f* is arranged slightly above the bottom of the apparatus so as to leave sufficient space for the dregs or heavy matters which precipitate during the process. 5

g is a pipe with a stopcock *g*¹ for the drawing off of the dregs and deposits and for the cleaning of the apparatus. To this pipe is connected an indicator tube for showing the level of the liquid in the apparatus which tube extends nearly to the top of the apparatus. The mouth of the pipe *g* is on a level with the bottom of the apparatus. 10

h is a thermometer.

i is the lid or cover of the apparatus which fits on the top thereof as tightly as possible. The central part of this cover has a bowl shaped depression formed in it which is indicated in broken lines at *j* in Figure 2 and is designed to receive cold water for accelerating condensation of the vapours given off by the liquid while it is being heated. Below the lid *i* and its depressed part *j* is fixed a large funnel marked *k* in Figure 3 pierced with a number of small holes *l* and furnished with a discharge pipe *m*. The holes *l* are formed preferably of two small slots making an angle towards the bottom of the funnel *k* the pointed piece of metal between the two slots being slightly bent inwardly. 15

Immediately below the pipe *m* is arranged a small funnel *o* fixed to one end of a pipe *o*¹ the other end of which passes through the side of the apparatus and terminates in a collector or test tube *p*. 20

The apparatus acts as follows

The cylinders *c c c* are first filled with cold water. The liquid to be treated is then introduced into the apparatus which is filled up nearly to the level of the pipe *o*¹ so as to leave as little air therein as possible. The cocks *d*¹ and *e*¹ of the pipes *d* and *e* are then opened. The water passing from the boiler enters the cylinders *c c c* and gradually replaces the cold water contained therein and returns to the boiler by the pipe *e*. 30

By gradually raising the temperature of the water proceeding from the boiler and maintaining the circulation through the pipes *d* the cylinders *c* and the pipes *e* the temperature of the liquid in the apparatus is slowly raised to the desired degree (from 40 to 55 degrees Centigrade) according to the nature of the liquid subjected to treatment. 35

This heating produces vaporization of the volatile matters aldehydes and ethers which ascend to the top of the apparatus pass through the holes *l* of the funnel *k* and become condensed by contact with the cover *i* subsequently falling in the form of drops down the inner walls of the funnel *k* and passing thence by the pipe *o*¹ into the test tube or collector *p*. 40

The heating of the liquid should be continued until a sample taken from the test tube *p* is found to be free from noxious elements.

The cocks *d*¹ and *e*¹ are then closed and the liquid is allowed to rest.

After a rest the duration of which depends on the nature of the liquid under treatment but should preferably never be under 48 hours the said liquid is drawn off into hermetically closed barrels or casks through the pipe *f* through which is afterwards withdrawn the supernatant layer of noxious substances of less specific gravity than the liquid. The deposit of heavy matters which forms at the bottom of the apparatus during treatment of the liquid therein may then be discharged through the pipe *g*. 50

The liquid in the casks is then subjected for about 30 days to final treatment by the action of cold as hereinbefore stated.

It is obvious that the apparatus described and represented may be modified in most of its parts without departing from the essence of my invention thus for example the cylinders *c* and pipes *d* and *e* may be replaced by a coil. 55

Apparatus for Rapidly and Economically Ageing or Maturing Alcoholic Beverages.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed I declare that I claim :—

- First. The process of ageing or maturing alcoholic beverages which consists in first subjecting the liquid to be treated to a progressive gentle methodical and prolonged heating in a suitable apparatus for freeing it from noxious substances which are more volatile and of greater density or specific gravity or less density or specific gravity than the said liquid then subjecting it to the action of cold for several weeks after which it is filtered or clarified and bottled or put into liquid tight casks or receptacles.
- 10 Secondly. For the carrying out of the process set out in the foregoing claim the use of an apparatus for the heating of the liquid characterized by pipes cylinders or other like arrangements situated at the bottom of the apparatus and in which circulation of heated water may be established a cover furnished with means for collecting the volatile matters which evaporate from the liquid under treatment means for causing outflow of the said volatile matters from the apparatus and discharge orifices permitting of separate withdrawal from the apparatus of the treated liquid the noxious matters of less density or specific gravity than the liquid and the deposit of dregs and heavy matters which forms at the bottom of the apparatus.
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Dated this Fifteenth day of January 1897.

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W. T. WHITEMAN,
Agent for the Applicant.